

Name: _____
PC: Circles

Date: _____
Ms. Loughran

Do Now:

1. Find the length of the line segment determined by points $A(x, y)$ and $C(h, k)$.

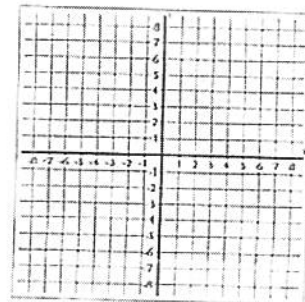
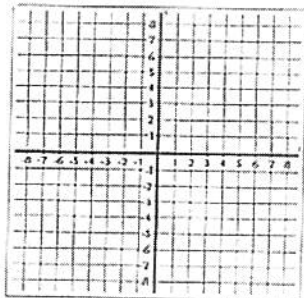
An equation of the circle with center (h, k) and radius r is

This is called the standard form for the equation of the circle. If the center of the circle is the origin, then the equation is

1. Graph each equation.

(a) $x^2 + y^2 = 25$

(b) $(x - 2)^2 + (y + 1)^2 = 16$



2. Find an equation of the circle with radius 3 and center $(-1, 4)$.

3. Find the center and radius of the circle whose equation is $(x + 2)^2 + (y - 3)^2 = 10$.

4. Write an equation of the circle whose diameter has endpoints $(0, 0)$ and $(6, 8)$.

5. Points $P(1,-5)$ and $Q(-3,3)$ are the endpoints of a diameter of a circle. Find the center, radius, and equation of the circle.
6. Find the center and radius of the circle $x^2 + y^2 + 4x - 6y - 12 = 0$.
7. Find the center and radius of the circle whose equation is $x^2 + y^2 + 2x - 6y + 7 = 0$.

8. Find the center and radius of the circle whose equation is $x^2 + y^2 + 6y + 2 = 0$

9. Find the center and radius of the circle whose equation is $x^2 + y^2 - 4x + 10y + 13 = 0$.

10. Find the center and radius of the circle whose equation is $9x^2 + 12x + 9y^2 - 77 = 0$.

Practice

Problems 1-3: Find the center and radius of each circle below.

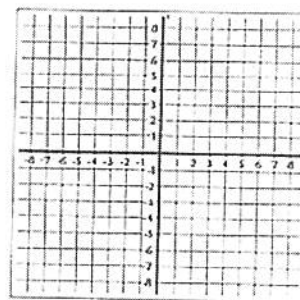
1. $(x - 3)^2 + (y - 2)^2 = 16$

2. $(x - 1)^2 + (y + 3)^2 = 4$

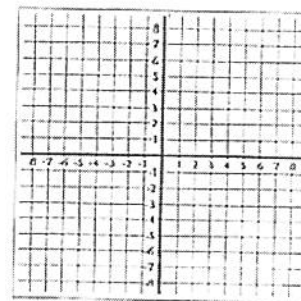
3. $(x + 2)^2 + (y - 5)^2 = 1$

Problems 4-5: Graph the following.

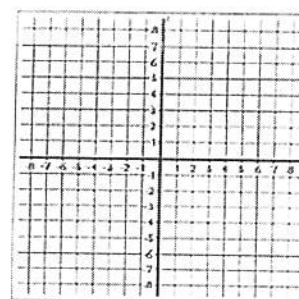
4. $(x - 1)^2 + (y + 3)^2 = 9$



5. $x^2 + (y + 2)^2 = 36$



6. $(x + 2)^2 + (y - 1)^2 = 4$



7. Write the equation of a circle in standard form that has a radius of 5 and a center at $(3, -2)$.

8. Write the equation of a circle in standard form that has a radius of 2 and a center at $(-1, -4)$.

9. Write the equation of a circle in standard form that passes through the point $(5, 4)$ and has a center at $(2, 0)$.
(Draw a picture.)

10. Write the equation of a circle whose center is at $(1, 1)$ that passes through the point $(4, 5)$.

11. Find the radius of a circle with equation:

$$x^2 - 6x + y^2 + 10y = 2$$

12. Write the equation of the circle in standard form:

$$x^2 - 10x + y^2 - 8y = -32$$

13. Write the equation of the circle in standard form:

$$x^2 + 4x + y^2 + 6y = 0$$

14. Write the equation of the circle in standard form:

$$x^2 - 2x + y^2 - 4y - 3 = 0$$
